ODICAL
#5
FAO Fisheries Biology Synopsis.
CONTRIBUTED PUBLICATION
IPFC/C 62/CP/10

PREPARATION OF REGIONAL FISHERIES OCEANOGRAPHIC SYNOPSES

Prepared by

Biology Branch, Fisheries Division, FAO

FISHERIES DIVISION, BIOLOGY BRANCH
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, June 1962

FAO FISHERIES DIVISION BIOLOGY BRANCH DOCUMENTS

Three series of documents are issued by the Biology Branch. These are not official FAO publications; they are given a restricted external distribution and this fact should be indicated if they are cited. Most of the documents in these series are prepared as working papers for meetings, or are summaries of information for the use of member governments, organizations, and specialists concerned. The series are:

FAO Fisheries Biology Report **FB/R(No.)**
FAO Fisheries Biology Synopsis **FB/S(No.)**

Special groups of synopses are identified by the following symbols:

CART Information concerning the living aquatic resources of certain countries and regions.

SAST Data concerning certain species and fish stocks.

MAST Methods and subjects synopses.

OT Oceanography synopses.

IT Limnological synopses.

FAO Fisheries Biology Technical Paper

Special groups of Technical Papers are identified by the symbols:

RE Indexed lists of names and addresses of experts and institutions drawn from the Registers of Experts and Institutions maintained by Biology Branch.

CB The "World List of Periodicals for Aquatic Sciences and Fisheries", Meetings and Activities Sections from, and the Handbooks for, the "Current Bibliography for Aquatic Sciences and Fisheries", special bibliographies and technical papers concerning documentation and bibliographic problems.

Numbers following the symbols are for classifying the document, using the codes of the indexes to the "Current Bibliography for Aquatic Sciences and Fisheries".

Some documents may carry other identification numbers, if, for example, they have been contributed to a meeting for which papers have been marked according to another system; in requesting copies it is sufficient, however, to quote the "FB" number given at the top right-hand corner of the title page.

DOCUMENTOS DE LA SOUS-DIVISION DE LA BIOLOGIE DIVISION DES PÊCHES DE LA FAO

La Sous-Division de la Biologie publie trois séries de documents; ceux-ci ne figurent pas parmi les publications officielles de la FAO, mais font seulement l'objet d'une distribution extérieure restreinte, aussi convient-il de le préciser lorsque ces documents sont cités. Il s'agit le plus souvent de documents de travail préparés pour les réunions, ou de résumés d'information à l'intention des gouvernements des pays membres, ainsi que des organisations et spécialistes intéressés. Ces séries sont les suivantes:

FAO Fisheries Biology Report **FB/R(No.)**
FAO Fisheries Biology Synopsis **FB/S(No.)**

Des catégories spéciales d'études synoptiques sont identifiées à l'aide des symboles suivants:

CART Renseignements sur les ressources aquatiques vivantes de certains pays et régions.

SAST Données sur certaines espèces et populations de poissons.

MAST Etudes synoptiques sur des méthodes et des sujets particuliers.

OT Etudes océanographiques.

IT Etudes limnologiques

FAO Fisheries Biology Technical Paper **FB/T (No.)**

Des catégories spéciales de documents techniques sont identifiées à l'aide des symboles suivants:

RE Listes indexées des noms et adresses d'experts et institutions tirés des Registres des Experts et des Institutions tenus à jour par la Sous-Division de la Biologie.

CB Le "Répertoire mondial de périodiques concernant les sciences aquatiques et la pèche", les Sections des Réunions et Activités, tirées de la "Current Bibliography for Aquatic Sciences and Fisheries", le manuel de cette bibliographie ainsi que des bibliographies particulières et des articles techniques sur les problèmes de documentation et de bibliographie.

Les chiffres qui accompagnent les symboles sont destinés à la classification du document au moyen des codes d'indexation de la "Current Bibliography for Aquatic Sciences and Fisheries".

Il arrive que certains documents portent d'autres numéros d'identification, comme c'est le cas s'ils ont été préparés pour une réunion dont les documents ont été marqués à l'aide d'un autre système; mais lorsque l'on demande des copies de ces documents il suffit de mentionner le numéro "FB" figurant en haut et à droite de la page de couverture.

DOCUMENTOS DE LA SUBDIRECCION DE BIOLOGIA DIRECCION DE PESCA DE LA FAO

La Subdirección de Biología publica tres series de documentos que no constituyen publicaciones oficiales de la FAO, siendo objeto de distribución externa limitada, circunstancia que debe indicarse, caso de ser citados. La mayoría de los títulos que figuran en dichas series son documentos de trabajo preparados para reuniones o resúmenes de información destinados a los gobiernos de los Estados Miembros, organizaciones y especialistas interesados. Las series son las siguientes:

FAO Fisheries Biology Report **FB/R(No.)**
FAO Fisheries Biology Synopsis **FB/S(No.)**

Los grupos especiales de sinopsis se distinguen con las siguientes siglas:

CART Información sobre los recursos acuáticos vivos de algunos países y regiones.

SAST Datos relativos a ciertas especies y poblaciones.

MAST Sinopsis sobre métodos y materias.

OT Sinopsis sobre oceanografía.

IT Sinopsis sobre limnología.

FAO Fisheries Biology Technical Paper **FB/T (No.)**

Para distinguir los grupos especiales de documentos técnicos se emplean los símbolos siguientes:

RE Listas clasificadas de nombres y direcciones de expertos tomados de los Registros de Expertos y de Instituciones que se llevan en la Subdirección de Biología.

CB La "Lista mundial de publicaciones periódicas referente a las ciencias acuáticas y a la pesca", las Secciones de Reuniones y Actividades de la "Current Bibliography for Aquatic Sciences and Fisheries", el manual para su manejo, bibliografías especiales y los trabajos técnicos sobre problemas de documentación y bibliografía.

Los números de que van seguidos los símbolos sirven para clasificar el documento, empleándose las claves de los índices de la "Current Bibliography for Aquatic Sciences and Fisheries".

Algunos documentos pueden llevar otros números de identificación si, por ejemplo, son contribuciones a una reunión cuya documentación haya sido marcada con arreglo a otros sistemas. Sin embargo, para solicitar ejemplares basta mencionar el número "FB" que figura en la parte superior derecha de la portada.

FAO Fisheries Biology Synopsis No. 5 FB/S5(Rev.1)
(Distribution restricted) OT - General

PREPARATION OF REGIONAL FISHERIES OCEANOGRAPHIC SYNOPSES

Prepared by

Biology Branch, Fisheries Division, FAO

FISHERIES DIVISION, BIOLOGY BRANCH
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, June 1962

24004

PURPOSE OF THIS SERIES

This is one of a group of documents within the series of FAO Fisheries Biology Synopses, which summarises available data pertaining to the oceanographic features of the environment of fish stocks and to their relations with that environment, as well as to oceanographic and climatological factors which affect, and may limit, fishing operations. It is envisaged that they should serve the needs of FAO to report upon the status of fisheries industries and of research on the marine resources. It is hoped that they will, in addition, be useful to fisheries biologists, economists, technologists and administrators as concise summaries of facts pertinent to their own problems. The pattern and method of preparation of Oceanographic Synopses is described in detail in FB/S5(Rev.1). Extra copies can be obtained by application to:

Research Programs Section
Biology Branch, Fisheries Division
FAO, Rome, Italy

PREPARATION OF THIS DOCUMENT

Revision by T. Laevastu and S.J. Holt of FB/60/S5 (issued in December 1960) for guidance of collaborators in this project, and incorporating amendments to the standard outline, requirements of the "Serial Atlas on the Marine Environment", and the first report of the ICES Working Group on the North Sea Synopsis.

Distribution

FAO Fisheries Division
FAO Regional Fisheries Officers
Dr. T, Laevastu
Editorial panel "Serial Atlas of the Marine Environment"
Regional Fisheries Councils and Commissions
ACC Sub-committee on Oceanography
Members of ICES Working Group on the North Sea Synopsis
Members of the ICNAF Working Group on Environmental Studies
Dr. I. Hela
"FBCB Short-all" Mailing List

"Current Bibliography" entry:

FAO, Fisheries Division, Biology Branch (1962) 62-03468 M
FAO Fish.Biol.Synops., (5-Rev.1):14 p.
Preparation of regional fisheries oceanographic synopses

NE 61-01198. Gives revised standard outline for oceanographic synopses, requirements of "Serial Atlas on the Marine Environment", and appends 1st report of ICES Working Group on the North Sea Synopsis, which was issued previously as document from 60-318me.

Project No.
2.21/3

CONTENTS

		Page
1.	INTRODUCTION	1
2.	OUTLINE FOR OCEANOGRAPHIC SYNOPSES	4
3.	EARLIER DOCUMENTS	5
4.	SERIAL ATLAS OF THE MARINE ENVIRONMENT: NORTH ATLANTIC	6
5.	APPENDIX : FIRST REPORT OF THE ICES WORKING GROUP ON THE NORTH SEA SYNOPSIS	10

1. INTRODUCTION

The Biology Branch of the Fisheries Division of FAO is concerned with scientific studies of the exploited and potential living resources of the oceans, and with the application of the information obtained for the better and fuller use of those resources. To this end the Branch compiles, interprets and disseminates pertinent facts; it is concerned with improving the methods of fisheries biological and fisheries oceanographic research, promoting the wider use of these methods, and encouraging the application of the results of research for the improvement of fisheries and the increase of fish yields.

Information about the resources which is compiled includes that pertaining to the oceanographic features of the environment of fish stocks and to their relations with that environment, as well as to oceanographic and climatological factors which affect, and may limit, fishing operations. From time to time synopses of information about particular geographical regions are prepared. These have usually been issued in connection with relevant international meetings, and in mimeograph form. Earlier documents, listed in section 3 of this paper, did not conform to a standard pattern. An attempt was made to develop, on the basis of experience gained, a pattern for such synopses, which could be applied to all areas - regardless of how intensely they had been investigated - and which would, in particular, help to identify gaps in knowledge. It was envisaged that such synopses would serve the primary needs of FAO to report regularly upon the status of fisheries industries and of research on the marine resources. It was hoped that they would, in addition, be useful to fisheries oceanographers as sources of reference, and to fisheries biologists, economists, technologists and administrators as concise summaries of facts pertinent to their own problems.

In November 1959, Professor Ilmo Hela of Finland, was consulted by FAO as to the methods of reduction of various kinds of oceanographic data for the purposes described above. He acquainted himself with the documentation systems so far developed in Fisheries Biology Branch and proposed a new draft outline for the Oceanographic Synopses. A condensed form of Professor Hela's report was given as section 4 of Document FB/60/S5. The following notes, pertinent to this introduction, are extracted from the report.

"The Oceanic Thesaurus project, when seen as a plan for the representation of the oceanic ecology of various see areas, deserves support, since it will both promote fisheries biology and make oceanographic knowledge of various seas available - even to oceanographers - in a digested form and thus promote oceanography itself."

"The purpose of the Oceanic Thesaurus must be to express the total oceanic knowledge at a given time in a form which can be used by fisheries biologists without further digestion or evaluation. Provision of perfect library facilities or data centres does not solve this problem, nor can the

objective be reached by means of a normal textbook on oceanography. The output of the Oceanic Thesaurus must take the form of independently prepared, but analogous, synopses for each region. The main purpose must be to describe oceanic ecology of any given sea area in a systematic and logical way."

"Next comes the problem of representation. The scientific essay is not practical for Fisheries Biology Branch because:

the writing of an essay for a new region is a laborious and very time-consuming task;
an essay is difficult to bring up-to-date;
comparison of different sea regions is not easy on the basis of essays, which cannot be strictly conformable or analogous.

The form of representation must therefore be a different and more practical one. In spite of all gaps in knowledge, a detailed scheme for a regional summary is better than a more general way of representation, since in this case:

comparisons are easier to carry out;
complementary additions and changes can be made more easily;
lack of certain information becomes more evident, which may stimulate other workers."

"The regional summaries of oceanic ecology can be achieved as the result of the evaluation of existing knowledge and of new research. The task of FAO cannot be the conduct of this new research (except to some extent through the U.N. Technical Assistance activities and by arranging the concerted action of member countries through the FAO Fisheries Councils) but rather the collection, compilation, digestion and evaluation of knowledge that already exists."

"In addition to its own work FAO should encourage and support steps towards the necessary evaluation of existing knowledge by other bodies in the various regions of the world."

"Obviously the FAO staff cannot prepare many of these regional summaries at the same time. Instead the Biology Branch should start by continuing to collect papers and other material on a world-wide scale as indicated in the prepared Outline for the Oceanic Thesaurus, and, at the same time, prepare one regional summary on oceanic ecology for a selected area."

"It is evident that a large part of the first draft of such a synopsis will have to be rewritten; later amendments and additions will alter even vital parts of the text and this will go on for several years. This fact must be taken into account in the practical handling of the task, especially in considering the form of duplication and the distribution of the various drafts. Later on, FAO should undertake the same task in relation to other sea areas. Eventually the role of the Fisheries Biology Branch might be limited to organizing and coordinating regional and institutional activities."

Professor Hela further proposed that a "trial run" be made, using the North Sea as a test area. The North Sea was chosen because of the abundance

and apparent intractability of available data. A first draft of the North Sea Synopsis was submitted to the 48th Statutory Meeting of the International Council for the Exploration of the Sea (ICES) in Moscow, September 1960, where it was considered by the specialized committees concerned, especially the Hydrographic Committee. As a result the Council made the following recommendation:

"With reference to the report by FAO Fisheries Division on activities of mutual interest 1959/60, it is recommended that all member countries with experience in North Sea oceanography be enjoined to render, through ICES, all possible assistance to FAO in the realization of its project relating to the draft synopsis on the North Sea, on the understanding that there will be clear acknowledgement of the ICES collaboration and that ICES contribution shall relate to published material only."

There were justified comments from several scientists that an anonymous collection of data from an organization without critical, identified comments might lend "authority" to data and theories, some of which should be revised or considered in the light of methods used and purposes for which they were originally collected or devised. It was therefore felt that different maps might be prepared and data commented on by individual scientists willing to cooperate in this task and that they be clearly indicated as authors and thereby fully responsible for comments and views presented. Quality and quantity of data in the synopsis can thereby also be improved.

As a direct conclusion from the above and from the fact that FAO's activities must for the time being be concentrated on newly developing areas (FAO plans in 1962-63 to concentrate efforts on the South Atlantic) it was suggested that ICES might be interested and willing to take over the general responsibility for the North Sea synopsis. Consequently, at the 1961 annual meeting ICES established a working group on the North Sea Synopsis (see Appendix I) and nominated scientists to be responsible for different chapters of this synopsis.

As a result of the first trial with the North Sea Synopsis it appeared necessary to modify the standard outline slightly from that first proposed by Professor Hela and the form given in Section 2 of this paper was agreed with him and the ICES Working Group on North Sea Synopsis.

After the first draft of the North Sea Synopsis had been presented to ICES, the possibility of the World Meteorological Organization (WMO) assisting in the revision of Section 3, CLIMATE, WEATHER AND HYDROLOGY, and the preparation of this section in subsequent synopses, was discussed. At its meeting in London in December, 1960, the Commission for Climatology of WMO considered the arrangements for this collaboration. Consequently Mr. F.E. Lumb (U.K.) was requested by WMO to visit FAO and discuss the revision of the chapters of the North Sea Synopsis, concerned with meteorology and climatology. Mr. Lumb also participated on behalf of WMO in the ICES working group.

The Oceanographic Synopses will generally be issued within the "FB/S" (Synopses) series of FAO Fisheries Biology documents and identified within this series by the symbol "OT". Pagination will begin anew with each section, to facilitate the issuance of revised parts of a synopsis.

2. OUTLINE FOR OCEANOGRAPHIC SYNOPSES

The synopses are usually prepared by considering the natural regions as units. A map of these regions is given in Appendix II.

1. INTRODUCTION

1.1 Data and methods
(Routes of expeditions; location of stations, profiles, sections, institutions engaged, data centres)
1.2 Special aspects of data treatment

2. GEOGRAPHICAL AND GEOLOGICAL FEATURES

2.1 General geographical characteristics
2.1.1 Boundaries, areas and volumes
(Also area, width and depth of the continental shelf)
2.1.2 The coast
(Geomorphology of the coast, length and nature of the shoreline)
2.1.3 Shipping and fishing (general)
(Fishing grounds, intensity of fishing, ports, distances, intensity of shipping)
2.2 Submarine geology
2.2.1 Bathymetry
2.2.2 Nature of the bottom
(Distribution of different types of sediments)
2.2.3 Properties of the sediments
(Grain size distribution, content of organic matter and carbonates, other chemical and physical properties)
2.2.4 Physical and chemical processes in the sediments
(Rate of sedimentation, deliberation of nutrients, etc.)

3. CLIMATE, WEATHER AND HYDROLOGY

3.1 Climatological data
(Monthly and/or seasonal climatological data; atmospheric pressure, winds, frequency of storms, fogs and mists, air temperature, etc.)
3.2 Characteristic seasonal weather conditions
(Examples of seasonally characteristic synoptic weather charts with short explanations)
3.3 Meteorological services
(Forecast areas, availability and nature of forecasts for shipping and fishing)
3.4 Hydrology
(Precipitation, drainage areas, run-off, their seasonal variations)

4. PHYSICAL AND DYNAMICAL OCEANOGRAPHIC CHARACTERISTICS

4.1 Tides, tidal streams
4.2 Currents
4.3 Sea and swell
4.4 Storm surges
4.5 Water masses and their characteristics
4.6 Mixing and turbulence; water exchange; annual cycle of stratification and stability
4.7 Water temperature
4.8 Heat budget
4.9 Turbidity
4.10 Ice conditions

5. CHEMICAL OCEANOGRAPHY

5.1 Salinity, major constituents
5.2 Oxygen and other dissolved gases
5.3 Trace elements
5.4 Nutrient salts
5.5 Pollution

6. BIOLOGICAL OCEANOGRAPHY

6.1 Basic organic production
6.2 Phytoplankton populations
6.3 Zooplankton populations
6.4 Marine bacteria
6.5 Pelagic fish
6.6 Fish eggs and larvae
6.7 Seaweeds
6.8 Benthos
6.9 Commercial shellfish
6.10 Demersal fish

3. EARLIER DOCUMENTS

FAO/55/10/6831 A note on fisheries resources of the ICES area, by FAO Fisheries Biology Branch. Issued as ICES Distant Northern Seas Committee C.M. 1955, No. 36.

The survey of living aquatic resources, by H. Rosa, Jr. (Reprinted from: Proceedings of the Gulf and Caribbean Fisheries Institute Ninth Annual Session, November 1956, Pages 153-170)

FAO/56/8/6299 The present state of knowledge on fisheries resources in the Mediterranean, by FAO Fisheries Biology Branch. Issued as GFCM WP.25/1, 1956.

FB/57/T58 The present status of knowledge of the living resources of the marine waters of the west coast of Africa, by FAO Fisheries Biology Branch, 1957.

FB/60/T5 Fisheries resources of the east coast of Africa and the central Indian Ocean, by H. Rosa, Jr. and T. Laevastu, 1960.

FB/60/S2 Synopsis of information on the oceanography of the North Sea, by T. Laevastu, 1960.

FB/60/S5 (First version of the present document)

4. SERIAL ATLAS OF THE MARINE ENVIRONMENT: NORTH ATLANTIC
(A Geographical Journal of Biological and Physical Oceanography)

The American Geographical Society, working with a Panel set up by the Committee on Oceanography of the U.S. National Academy of Sciences - National Research Council, has started to publish a scientific journal of an unusual kind, with the above title. It consists of maps, accompanied by any necessary explanatory text and will appear irregularly as contributions are received and accepted. It is a medium for publication of studies of all kinds - biological, geological, physical, chemical - that will increase understanding of the marine environment. Initially it is limited in scope to the Atlantic from the Equator to the North Pole, including the Arctic basin and the Mediterranean, and is based on a specially prepared oblique stereographic azimuthal projection, an equal area projection especially suitable for plotting currents, etc. (see below).

The layout of charts was discussed by ICNAF at its 1958 Annual Meeting in Montreal.

Scientists who contribute to the journal are able to obtain the work sheets at nominal cost from the Society. Any contributions to the subject are welcomed, provided of course they conform with the editorial policy established by the Panel and will be subject to editing by professional cartographers.

The atlas is published in sheets 60x38 cm and might eventually be available in two editions - one opaque and the other transparent, perhaps on film to facilitate comparative studies - and may also be issued on microcards.

It is believed that the new journal meets a growing need in the study of the environment and of marine organisms and offers a ready and standard means of recording and comparing distributions. Compiling and plotting the distributions of as many variables as possible permits a broad approach to problems of spatial and temporal correlations and may uncover critical areas towards which new research efforts may be directed. The journal also offers marine biologists a means of publishing material gathered incidentally in the course of their investigations that might otherwise stand little chance of being recorded.

The plan is sponsored in the United States by the National Academy of Sciences - National Research Council, and in Canada by the Royal Society of Canada. The panel is international, and consists at present of M.J. Dunbar (chairman), Lionel A. Walford (secretary), Charles B. Hitchcock,

C. O'D Iselin, Ernest Thompson, C.S. Pittendrigh, T.W.M. Cameron and H.H. Hess. FAO is represented on the panel by the Chief of its Fisheries Biology Branch and ICES has nominated a corresponding member.

FAO is collaborating with the sponsors of the Serial Atlas by submitting for publication in its regional synopses of oceanographic data and is adopting for its own use (as well as encouraging use by other organizations) the new base maps.

The Projection for the American Geographical Society's Base Maps

All map sheets for the North Atlantic are based on a projection centred at 54 degrees N., and 38 degrees W. This has been computed to enable lines of latitude and longitude at one-degree intervals, with the addition of half-degree intersections, to be plotted. The computations are sufficiently precise that graticules (grids of lines of latitude and longitude) for small areas within the general region can be plotted accurately on large scales. The projection also provides close to the optimum conformal presentation when the whole region is to be shown at a small scale on one sheet. (Strict conformality has been maintained by first transforming from the International Spheroid of Reference to a suitable conformal sphere and thence to the plane).

The work sheets have a scale of 1:300,000; the outline maps are on the nominal scale of 1:2,500,000 and feature coastlines and major rivers. The maps are printed in nonphotographic blue. The paper size for each sheet is 90x125 cm and ample space is left for marginal notes.

It is expected that base maps will eventually be required on a variety of scales covering many subregions. Though an attempt is being made to break up the whole region into suitable subregions, which can then be shown on individual base maps, it seems probable that many studies will not fall within the boundaries of any one base-map sheet. Thus a prime advantage of constructing all base maps on the same projection is that adjoining sheets on the same nominal scale can be fitted together exactly, without scale or angular discontinuities.

As the program develops, summarizing maps will be produced on certain topics that will illustrate the coordinate findings of several individuals working in various subregions. Also, maps will eventually be designed and constructed to show the relationships between two or more different types of phenomena. A single map projection used throughout will simplify the task of summarizing and coordination and will save time and expense in preparing maps for reproduction and publication.

In order that these maps may have proper and adequate distribution, no charge is being made by the American Geographical Society for compilation, printing, and handling costs. Those ordering the sheets are, however, requested to pay for postage and cost of container used for shipping. Under this arrangement a maximum of ten copies of each sheet will be supplied to institutions or individuals. If more than ten copies of the same sheet are required, the Society will make a small charge for each additional copy of this sheet.

Requirements of the Serial Atlas of the Marine Environment

(Extracted from letters from Mr. W. Webster, Project Director of the Serial Atlas of the Marine Environment, American Geographical Society, Broadway at 156th Street, New York 32, N.Y.)

GENERAL

The Atlas consists basically of maps with brief ancillary text, tables and graphs. The format is 16" by 12½". All data on the maps and in the text must be in the metric system.

MAPS

Base maps of uniform scale of 1:2,500,000 are available from the Project Director. The accurate draft of the maps should be prepared on these base maps. The American Geographical Society prepares the final maps.

Full page maps - The full page maps rank as Plates and are numbered Plate 1, Plate 2, etc. Black, and as many as three additional colours, may be used, depending on map requirements. The dimensions of the full page maps (excluding the title heading and legend) are approximately 11¼" wide by 12¼" deep. The published scale will generally be 1:10,000,000.

This information is given only to help visualize the format of the Atlas. Contributors should not concern themselves with the problems of laying out their maps to accord with final map size and scale. They should, rather, concern themselves with preparing an accurate working draft. All such maps should be prepared on the Society's base maps.

Part page maps - Part page maps are fitted into the dimensions for a page of text. Hence their widths will be either that of 1, 2 or 3 columns (3½", 7 1/8" or 10 3/4"). No intermediate width can be allowed. The titles for all maps will be set outside the map limits.

TEXT

The text is set out in three columns, each 3½" wide and 14 5/8" long, approximately 3,000 words per page. The text must be typed in double spacing, (60 characters, or spaces, per line), and the master (ribbon) copy and one carbon copy should be submitted to the Society. 189 lines of typescript will equal one complete page of text set out in three columns. Each centre heading used for sub-dividing the text, will be counted as 4 lines.

Bibliographies, although included in the text, should be typed separately from it.

The following explanations should be given if necessary and/or feasible in the text for each map:

(a) Major references to the sources of data
(b) Comments and general notes (and tables) necessary for the interpretation of the data on the maps
(c) Notes on the methods used for obtaining the data (where necessary)

(d) The accuracy of the data and their variability with space and time (where possible)
(e) Any other limitations of the data or presentations.

TABLES AND GRAPHS

Tabular material is included in the text. This should be kept to a minimum. Tables may be 1, 2 or 3 columns wide ($3\frac{1}{2}$", 7 1/8" or 10 3/4").

Graphs should also be kept to a minimum and the same dimensions apply as for the tables.

5. APPENDIX

The International Council for the Exploration of the Sea

C.M. 1961

First Report From the Working Group on

the North Sea Synopsis

The group sat throughout the morning of Tuesday, 3rd October, 1961, and again in the afternoon of the same day.

Present were:-

Dr. J.N. Carruthers	- in the Chair
Dr. E. Bertelsen	- Denmark
Prof. T. Braarud	- Norway
Dr. H.A. Cole	- England
Dr. R.E. Craig	- Scotland
Dr. J.H. Fraser	- Scotland
Dr. J. Joseph	- Germany
Dr. P. Korringa	- Netherlands
Prof. Dr. J. Krey	- Germany
Mr. T. Laevastu	- F.A.O. (Rome)
Mr. F.E. Lumb	- W.M.O. (England)
Lieut.Cdr. D.P. Scott	- Guest (England)
Dr. G. Tomczack	- Germany

The three concerned committees of I.C.E.S. (Hydrographical, Plankton, and Near Northern Seas) were thus represented.

Before the group for consideration were the C.M. 1961 document No. 108 being the F.A.O. progress report, and the first draft of the synopsis prepared by F.A.O. in August 1960 (F.B./60/S.2) and tabled at last year's Moscow meeting of I.C.E.S.

It may be recorded at the outset that the entire deliberations of the Working Group were coloured by three main considerations, namely:-

(a) The fact that I.C.E.S. had passed a resolution of support for the undertaking a year ago.

(b) That, when eventually issued the synopsis must make the fullest possible acknowledgement to I.C.E.S., and must reveal the authorship of the constituent parts.

and, of prime importance,

(c) That no cost at all would fall upon I.C.E.S.

In his opening remarks the Chairman gave a quick summary review of the major sources of hydrographical information germane to the area known to him because those detailed by F.A.O. in Table 4.7 of the cited document FB./60/S.2 were by no means all. He emphasized that very careful thought be first given to the desirable scope and size of the synopsis so that the production of a publication could be hoped for which would be a valuable ready-use tool and not merely a bulky compendium. It may be taken that very full consideration of this main point is implicit in the proposals recorded below. From the detailed discussion which attested that all present considered that the group had an important project on hand, the following points may be taken:-

The definitive work will be published without cost to I.C.E.S. as part of the "Serial Atlas of the Marine Environment" to be issued by the American Geographical Society. F.A.O. will help with clerical work. W.M.O. welcomes advice because of the large amount of meteorological information contained in various oceanographical publications not known to professional meteorologists.

I.C.E.S. will nominate the experts who will be asked to undertake the writing of the individual parts of the synopsis. Though it may not be easy, and is illogical, to chop the precise area of the North Sea from the larger one of the present synoptic charts when water conditions have to be considered, it is nevertheless best to restrict the synopsis to the North Sea because individual writers can take some account of contiguous waters where necessary.

A very welcome situation is that the component parts of the synopsis can appear separately. The format will be as already stated.

The Chairman insisted that the synopsis must start by presenting a good chart of the North Sea in point both of bathymetry and nature of bottom, and supposed that one now in preparation in the German Hydrographic Institute will serve excellently. Members of the group wish for the inclusion also of a chartlet showing the I.C.E.S. statistical rectangles and one portraying the fishing areas under their old names, such, for instance, as Bruceys Garden.

The question of projection arose and, when the Chairman remarked that many charts likely to be submitted would necessarily be Mercator, the F.A.O. member of the group said that the publishing agency would do any necessary transformations into the intended standard projection.

The members of the group were greatly pleased by the willingness of W.M.O. to do a large amount of work in connection with the synopsis.

It was agreed that the opening part of the synopsis should deal with the relevant Meteorology, and for this the representative of W.M.O. (Mr. Lumb) was asked to accept full responsibility. He will get all possible assistance from oceanographers and will be told with whom he could most profitably consult. He will add to presentations concerning wind and the more obvious other elements, attention to runoff, evaporation, cloud cover, etc., etc., and will show the river systems draining into the North Sea. He will consult with the various national organizations on questions such as river drainage and other factors affecting the water budget of the North Sea. At some stage attention will be given to the geology of the confining landmasses.

After very full discussion indeed, it was agreed that the synopsis should, following Meteorology, comprise three main parts:-

1 - Physical Oceanography
2 - Chemical Oceanography
3 - Biological Oceanography.

The subdivisions and the persons asked to be responsible for them would be as set out below. Though only bald statements follow here, a full exchange of views took place as to what should be dealt with --- and these views will be made known to the intended authors of the component parts of the synopsis.

1.1 Tides and Tidal Streams

Herr W. Horn, Germany.

1.2 Currents

Dr. J.N. Carruthers, England.

1.3 Sea and Swell

Mr. Lumb, England, in full consultation with Messrs. Roll and Tomczack of Germany and experts of the British N.I.O.

1.3a Storm Surges

Dr. G. Tomczack, Germany.

1.4 Water Masses and their Characteristics

Mr. T. Laevastu, F.A.O. (Rome).

1.5 Mixing and Turbulence: Annual Cycle of Stability

Dr. J. Joseph, Germany.

1.6 Water Temperature

Drs. Tomczack and Dietrich, Germany.
(Here the authors would be expected to avail themselves of the new charts of surface temperature debated this year in the specialist sub-committee of the Hydrographical Committee. For the depths the information available at present would be used but new material expected from Germany would be employed in future.)

1.7 Heat Budget

Mr. F.E. Lumb, England.

1.8 Turbidity

Dr. J. Joseph, Germany.

1.9 Ice Conditions

Dr. F. Nusser, Germany and Mr. F.E. Lumb, England.

2.1 Salinity and Major Constituents

Dr. K. Kalle, Germany, in consultation with Dr. Cooper and others.
(Charts as 1.6 above).

2.2 Oxygen and other Dissolved Gases

Dr. K. Kalle, Germany.
(Alkalinity will be included).

2.3 Trace Elements

Dr. K. Kalle, Germany.
Dr. R. Johnston, Scotland.
Dr. P. Jones, England.

2.4 Nutrient Salts

Mr. R.E. Craig, Scotland is responsible and will work with his colleague Dr. R. Johnston.
(Total phosphorus will be included).

2.5 Pollution

Dr. J. Joseph, Germany.
Dr. P. Korringa, Netherlands.

3.1 Basic Organic Production

Prof. E. Steemann Nielsen, Denmark.

3.2a Phytoplankton Populations

Prof. T. Braarud, Norway.

3.2b Zoological Populations

Dr. J.H. Fraser, Scotland.

3.2c Marine Bacteria

Dr. Shewan, Scotland.

3.2d Fish

Dr. H.A. Cole, England.

3.2e Fish Eggs and Larvae

Mr. A.C. Simpson, England.
Dr. Henderson, Scotland.
Mr. A. Saville, Scotland.

3.3a Seaweeds

British Phycological Society.

3.3b Bottom Invertebrates

Dr. Ziegelmeier, Germany.

3.3c Commercial Shellfish

Dr. P. Korringa, Netherlands.

3.3d Demersal Fish

Dr. H.A. Cole, England.

- - - - -

With an exhortation that authors should always bear the word "synopsis" in mind and observe brevity in consequence, the meeting of the working group concluded.

J.N. Carruthers

4.X.61

FAO FISHERIES BIOLOGY SYNOPSES (OT)

FB/60/S2	Synopsis of information on the oceanography of the North Sea	August, 1960
FB/60/S5	Preparation of regional fisheries oceanographic synopses	December, 1960
FB/S5(Rev.1)	Preparation of regional fisheries oceanographic synopses	June, 1962